

(12) UK Patent Application (19) GB (11) 2 179 440 (13) A

(43) Application published 4 Mar 1987

(21) Application No 8618915

(22) Date of filing 1 Aug 1986

(30) Priority data

(31) 3527958

(32) 3 Aug 1985

(33) DE

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Licentia Patent-Verwaltungs-GmbH

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(51) INT CL⁴

F24C 7/00

(52) Domestic classification (Edition I):

F4W 20

H5H 111 179 193 231 234 AA4

(56) Documents cited

GB A 2149280

GB 0944660

EP A1 0029179

GB 1133465

GB 0439042

(58) Field of search

F4W

A4D

Selected US specifications from IPC sub-class F24C

(54) Baking and roasting oven

(57) A baking and roasting oven consists of a heatable oven liner (1), the heating means of which consists of a heating element at the bottom and one at the top and possibly of a grill heating element as well as a hot-air fan. The oven liner (1) is partially or completely formed or composed of wall portions (7) of glass or glass ceramic. Radiant heating elements or halogen heating elements (14), which are accommodated in a tray-like or trough-like insulating member (15), serve as heating elements. The tray-like or trough-like insulating member (15) is pressed with its open side against the outside of the glass wall portion (7). An insulating space (19) in member (15) is filled with air or other heat insulating material.

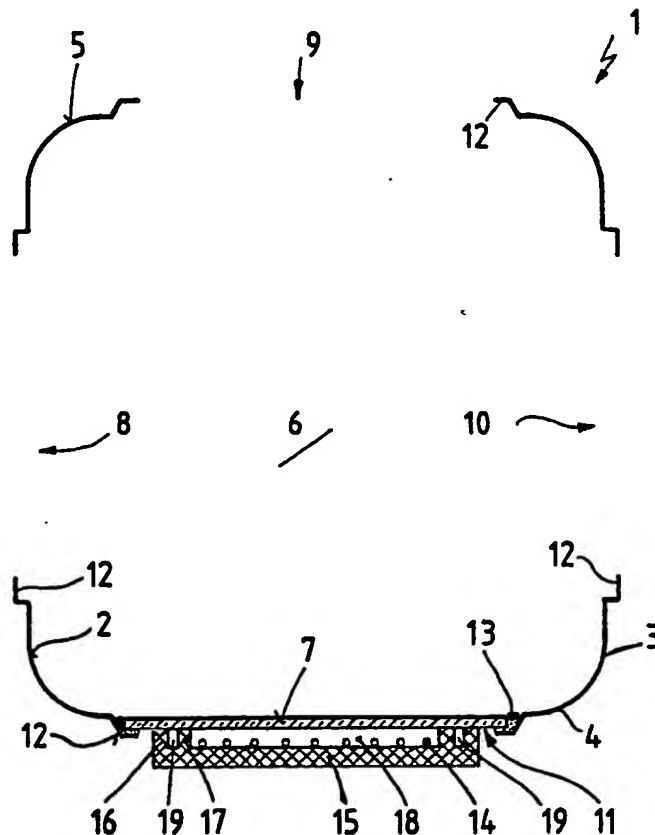


Fig.1

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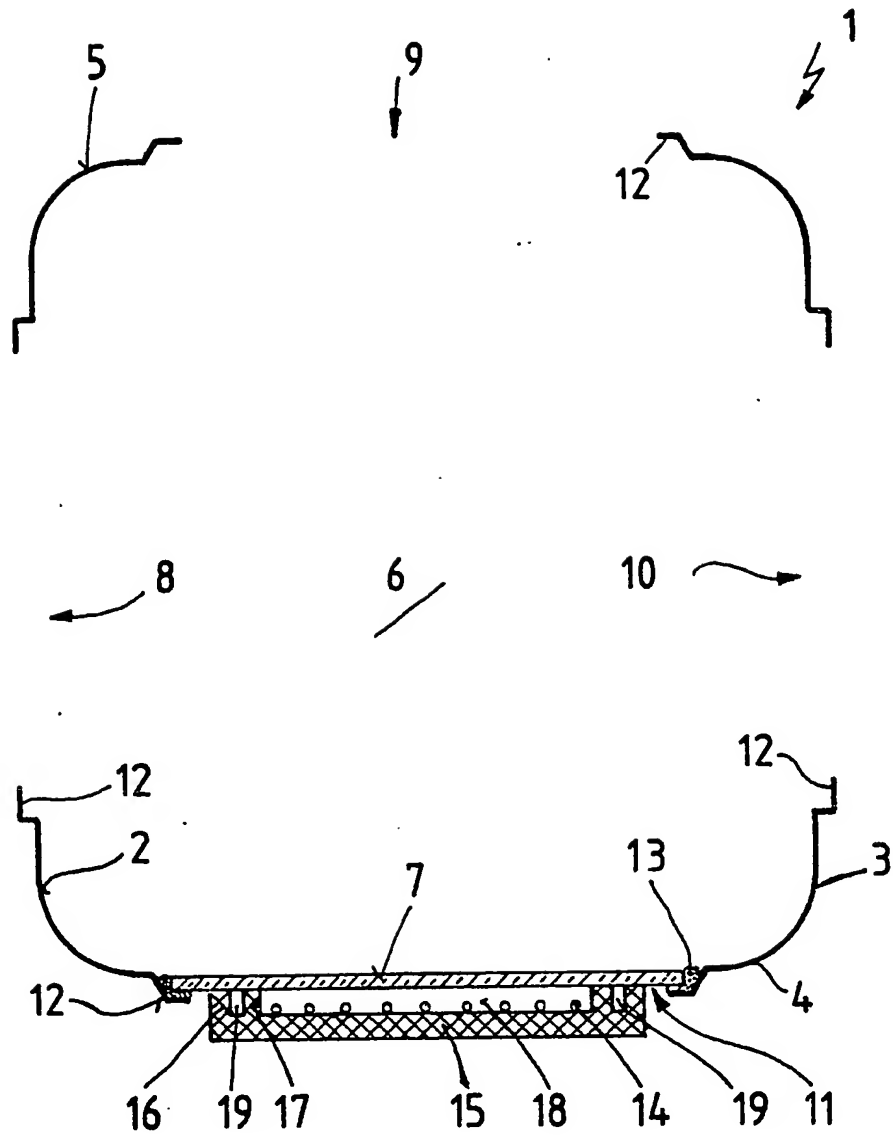
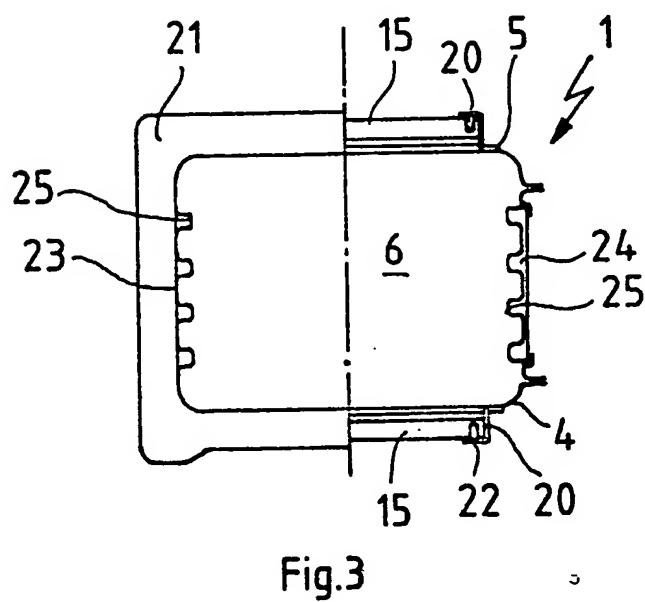
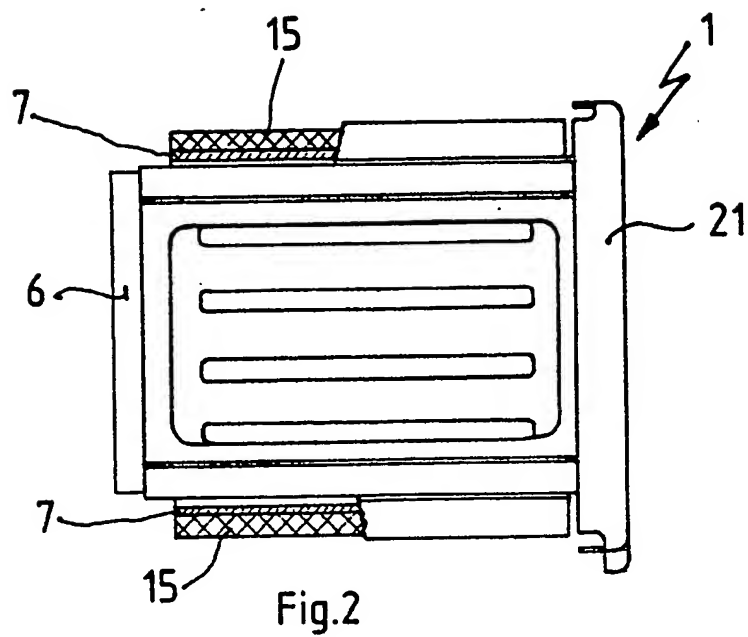


Fig.1

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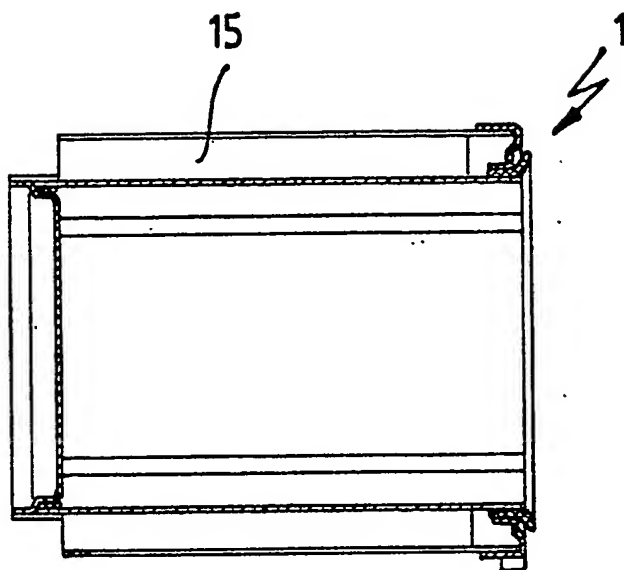


Fig. 4

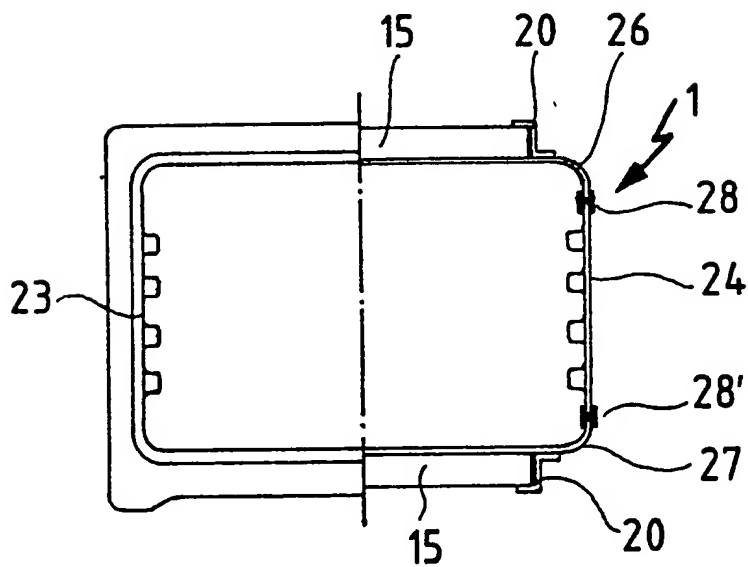


Fig. 5

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SPECIFICATION

Baking and roasting oven

- 5 This invention relates to a baking and roasting oven including a heatable oven liner, the heating means of which consists of heating elements respectively at the bottom and at the top of the liner.
- 10 Baking and roasting ovens of this type are generally known. Such a baking and roasting oven consists of an oven liner which is provided with a charging opening and which is generally formed from an enamelled sheet-metal body. One heating element is associated with the oven liner at the top and one at the bottom as upper and lower heating means. A grill heating element is often also provided in the interior of the oven liner, at the top. A circulating-air fan may further be disposed at the back to circulate hot air in the oven liner. For the insertion of the baking tins and the like, corresponding guides are formed laterally in the sheet metal body by means of stamped-in portions. Now in the case of such oven liners consisting of an enamelled sheet-metal body, the disadvantage arises that the soiling occurring during the baking or roasting operation very quickly gains a foothold on the enamelled, porous sheet-metal walls by burning on so that manual removal is often practically no longer possible. The use of chemical cleaning agents is also not always an advantage. In order to overcome the disadvantage indicated, cookers have become known wherein the oven liner is cleaned pyrolytically or its side walls are lined by fitting additional replaceable wall portions with a catalytic coating. These two measures increase the cost of such cookers considerably, however. This is also the reason why cookers equipped in such a manner can only be manufactured and sold in small numbers.
- Accordingly it is an object of the invention to provide an oven liner which is less sensitive to soiling tending to adhere and which can easily be cleaned by hand with extremely little expense. At the same time the heating of the oven liner is to be improved with simultaneous reduction in the heat losses.
- The invention accordingly provides a baking and roasting oven including a heatable oven liner, the heating means of which consists of heating elements respectively at the bottom and at the top of the liner, wherein the oven liner is partially or completely formed or composed of wall portions of glass or glass-ceramic, material, the heating elements comprise radiant heating elements or halogen heating elements each of which is accommodated in a tray-like or trough-like insulating member, and each tray-like or trough-like insulating member is arranged with its open side against the outside of a glass wall portion.
- 65 The oven liner according to the invention is

- 70 distinguished by a number of advantages which consist, inter alia, in that soiling can very easily be removed from the heated wall portions of the oven liner, consisting of glass or the like, without special aids, because this soiling does not enter into such an intimate connection of adhesion with the smooth walls surface as is the case with enamelled liner surfaces. Since all the heating elements are outside the actual interior of the liner, these are not in the way during the manual cleaning of the liner walls either. The tray-like or trough-like insulating member as a support for the radiant heating elements or halogen heating elements, forms the heat insulation of the oven liner towards the outside at the same time so that the separate provision of a liner insulation is eliminated.

- 75 Further preferred features and advantages of the invention will become apparent from the following description taken in conjunction with the subordinate claims.

- The invention is illustrated by way of example in the accompanying drawings in which:

- 90 *Figure 1* is a front sectional elevation of an oven liner according to one embodiment of the invention, with parts removed for clarity.

- 95 *Figures 2 and 3* are respectively side and front elevations of a complete oven liner assembly of the general structure shown in *Fig. 1*, with parts broken away for clarity, and

- 100 *Figures 4 and 5* are views similar to *Figs. 2 and 3* of another embodiment of the invention.

- Referring to *Fig. 1*, 1 designates an oven liner which has four side walls 2, 3, 4, 5 and a rear wall 6 and is made open towards the front or charging side where it can be closed by an oven door, not illustrated. The side walls 2, 3, 4, 5 (bottom and top walls 4, 5 and side walls 2, 3) and possibly also the rear wall 6 of the oven liner 1 are preferably formed from wall portions 7 of glass or glass-ceramic, of which only that of the bottom wall 4 is illustrated. For this purpose, the side walls 2, 3, 4, 5 are provided with window openings 8, 9, 10, 11 which occupy the greater part of the wall area and are bounded by a corresponding surrounding flanged edge 12 (supporting edge). The particular wall portion 7 consisting of glass or glass-ceramic is placed on this flanged edge 12 with the interposition of a heat-resistant resilient adhesive sealing compound 13. The wall portion 7, placed in position and stuck, lies in the same plane as the side walls 2, 3, 4, 5 of the oven liner 1. Radiant heating elements or halogen heating elements, such as are also used, for example, for ceramic hot-plates, preferably serve as heating elements for the oven liner 1. Each of the heating elements 14 needed for one side wall of the oven liner 1 is accommodated in an insulating member 15 which is open towards one side and constructed in the
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form of a tray, trough, or the like. For clarity only one element 14 and insulating member 15 is illustrated. The insulating member 15 is pressed with its open side against the outside of the particular glass wall portion 7. The tray-like or trough-like insulating member 15 is provided with a surrounding double web edge 16, 17. The inner web edge 17 defines a compartment 18 for the accommodation of the radiant heating element 14. Between the inner web edge 17 and the outer boundary web edge 16 there is a surrounding heat insulating compartment 19 which is filled with air or with another material which is a poor conductor of heat. The adhesive sealing compound 13 is prevented from being exposed too much to the radiation of heat by the heating element 14 as a result of this heat-insulating compartment.

The wall portion 7 consisting of glass or glass-ceramic may be wholly or partially coated in order to act as a heat reflector in the interior of the oven liner 1. Furthermore, an oven lighting means may be provided behind one of the glass liner wall portions 7. The upper heating means for the oven liner 1 may appropriately be formed from the combination of a radiant heating element as an upper heater and a halogen heating element as a grill heating means. As a result, the effect is achieved, in an advantageous manner, that the grilling operation is accelerated by a very high proportion of radiation and the grilling effect as a whole is intensified. The two heating elements may be switched on separately or together.

With an oven liner 1 formed from four glass side portions (cover, bottom and two side walls) with a heating arrangement on all sides, all-round grilling or all-round roasting is achieved as a result of which the turning-over and turning round of the food being grilled or roasted, which is otherwise usual, is no longer necessary for the user.

Figs. 2 and 3 show an embodiment of an oven liner 1 wherein the insulating member 15 with the radiant heating element accommodated therein is inserted, as a compact structural unit, from the outside, in guides 20 which are provided at the top and bottom 5, 4 of the oven liner 1. The guides 20 (for example angle rails or the like) comprise a limiting stop 22 for the insulating member structural unit 15 at the front, that is to say behind a liner flange 21 surrounding the charging opening of the oven liner 1.

It is also appropriate to use wall portions consisting of glass or glass ceramic for all the walls, including the rear wall, of the oven liner 1. The individual glass wall portions are then pushed into corresponding guide rails of a frame and can be connected by clipping or the like. Thus an all-glass liner is practically provided. At the same time, the lateral wall portions 23, 24 are constructed with the usual

lateral ribs 25 to receive slide-in members (for example baking tin).

In the embodiment shown in Figs. 4 and 5, H-section rails 28, 28' are used to hold together individual glass wall portions, for example 24, 26 and 24, 27.

The glass wall portions 26, 27 at the bottom and top may appropriately be made trough-like in shape.

75 CLAIMS

1. A baking and roasting oven including a heatable oven liner, the heating means of which consists of heating elements respectively at the bottom and at the top of the liner, wherein the oven liner is partially or completely formed or composed of wall portions of glass or glass/ceramic material, the heating elements comprise radiant heating elements or halogen heating elements each of which is accommodated in a tray-like or trough-like insulating member, and each tray-like or trough-like insulating member is arranged with its open side against the outside of a glass wall portion.

2. A baking and roasting oven as claimed in Claim 1, wherein there are formed in the side walls of the liner window openings into which the glass or glass ceramic wall portions are let, in alignment with the side walls of the liner.

3. A baking and roasting oven as claimed in Claim 2, wherein the window openings are bounded by a surrounding flanged edge.

4. A baking and roasting oven as claimed in any preceding Claim, wherein the glass wall portions are secured in the window openings with the interposition of a sealing adhesive compound.

5. A baking and roasting oven as claimed in any preceding Claim, wherein each tray-like or trough-like insulating member is provided with a surrounding double-web edge, the inner web edge defining a compartment for the accommodation of the heating element and a surrounding heat-insulating compartment being formed between the inner web edge and the outer web edge.

6. A baking and roasting oven as claimed in any preceding Claim, wherein the glass wall portions (7) are wholly or partially provided with a heat reflecting layer.

7. A baking and roasting oven as claimed in any preceding Claim, wherein an oven lighting means is disposed behind one of the wall portions.

8. A baking and roasting oven as claimed in any preceding Claim, wherein the combination of a radiant heating element and of a halogen heating element is provided as the heating means at the top of the liner.

9. A baking and roasting oven as claimed in any preceding Claim including a heating arrangement on all sides behind the glass wall portions of the oven liner.

10. A baking and roasting oven as claimed
in any preceding Claim, wherein the oven liner
comprises at its bottom and top guides for
the reception or insertion of the insulating
5 member.
11. A baking and roasting oven as claimed
in Claim 10, wherein the guides are provided
with a limiting stop.
12. A baking and roasting oven as claimed
10 in any preceding Claim, wherein all the walls
of the oven liner consist of glass or glass-
ceramic parts and the individual wall portions
are inserted in guide rails of a frame.
13. A baking and roasting oven as claimed
15 in any preceding Claim, wherein the lateral
glass or glass-ceramic wall portions are pro-
vided with guide ribs.
14. A baking and roasting oven as claimed
in Claim 1, wherein H-section rails are ar-
20 ranged to hold together glass wall portions of
the oven liner.
15. A baking and roasting oven as claimed
in Claim 1 or Claim 14 wherein the glass wall
portions at the bottom and top are made
25 trough-like in shape.
16. A baking and roasting oven substan-
tially as described herein with reference to Fig.
1 or Fig. 1 as modified by Figs. 2 and 3 or
Figs. 4 and 5 of the accompanying drawings.